

REMARKS

The application has been amended and is believed to be in condition for allowance. This amendment is filed as part of a Request for Continued Examination (RCE).

The indication that claims 11 and 18 would be allowed if amended into independent form is acknowledged with thanks.

The specification has been amended to add subject headings; no new matter is introduced by way of these amendments.

Claims 1-9, 11, and 13-20 remain in this application. Claims 10 and 12 are canceled without prejudice.

Claims 1-3, 5, 7, 13-14, 17, and 20 are amended to address antecedent basis issues and in consideration of U.S. practice and preferences. Claims 1, 13, 17 and 19-20 are further amended as outlined below. No new matter is introduced by way of these amendments to the claims.

Formal Matters

The Official Action rejected claims 19 and 20 under 35 USC 112, second paragraph as being indefinite for reciting limitations directed to "the isotropic crystal".

In reply, claim 19 and 20 have been amended to obviate the Official Action's rejection. Withdrawal of the indefiniteness rejection is solicited.

Substantive Rejections

The Official Action rejected claim 13 under 35 USC 102(b) as being anticipated by Damen et al. (US patent 4,395,769; "DAMEN").

The Official Action rejected claims 1, 5-10, and 12 under 35 USC 103(a) as being unpatentable over Shichijyo et al. (US patent 5,809,048; "SHICHIJYO") in view of Nettleton et al. (US Patent 6,373,865; "NETTLETON"), and further in view of Dixon et al. (US Patent 4,884,276; "DIXON") according to the previous Official Action.

The Official Action rejected claims 2-4 and 14-16 under 35 USC 103(a) as being unpatentable over SHICHIJYO in view of NETTLETON and DIXON as applied to claim 1, and further in view of Bacher et al. (US Patent 7,065,109; "BACHER") according to the previous Official Action.

The Official Action rejected claims 17, 19-20 under 35 USC 103(a) as being unpatentable over SHICHIJYO in view of NETTLETON and further in view of DIXON.

The rejections are respectfully traversed for at least the reasons that follow.

As to the rejection of method claim 13 as anticipated by DAMEN, it is firstly noted that claim 13 has been amended as to form as an independent method claim in accordance with U.S. practice.

Claim 13 is further amended to recite two method steps of i) varying an optical path length covered by the laser beam, and ii) varying the length of the birefringent crystal. The amendment finds support in the application as filed, for example page 1, lines 4-8, page 7, lines 3-5, and page 8, lines 4-8 of the specification.

It is respectfully submitted that claim 13 is patentable as amended over DAMEN. DAMEN, for example, does not teach or suggest a step of varying the length of the birefringent crystal. Therefore, it is respectfully requested that the rejection under 35 USC 102(b) be withdrawn. Reconsideration and allowance are respectfully requested.

As to the rejection of independent claims 1 and 17 under 35 USC 103(a), it is firstly noted that claims 1 and 17 have been amended with the subject matter of original claim 12 to recite the refractive index of the isotropic medium being within 10% of the refractive index of the birefringent crystal. Claim 12 has been canceled, as stated above. It is also noted that dependent claim 20 has been amended to remove the recitation of an "identical refractive index".

The amendment is supported in the specification and is essential for minimizing the double refraction effect at the birefringent crystal interface and allowing greater tolerance regarding the striking angle (page 9, lines 5-9). The feature allows in turn introducing the angle ε , in order to vary the

length of the birefringent crystal by translating the pump (page 8, lines 4-8), and maintaining a single mode operation while tuning the frequency of the laser (page 7, line 3-5 and page 8, line 4-8).

It is respectfully submitted that none of the references SCHICHIJYO, NETTLETON, or DIXON teach or suggest a refractive index of the isotropic medium being within 10% of the refractive index of the birefringent crystal, as recited by amended claims 1 and 17.

The Official Action on page 4 states that Nd:YAG and KNbO₃ of SCHICHIJYO have substantially the same index, making reference to claim 19 of Shimoji et al. (US patent 5,838,713; "SHIMOJI"). Claim 19 of SHIMOJI recites "said first crystal being Nd:YAG, and said second crystal being KNbO₃, said second and said first crystals having substantially the same index of refraction."

These teachings, however, do not teach or suggest refractive index of the isotropic medium as recited by the claims. The refractive index of KNbO₃ at 946 nm are, respectively, $n_{3f} = 2.127$ and $n_{3s} = 2.238$ (see application page 10, lines 38-39 and page 11, lines 1-3). The allowable interval for the refractive index of the isotropic medium, within 10% of the refractive index of the birefringent crystal, is $1.9143 < n < 2.4618$. The refractive index of Nd:YAG at 946 nm is $n_1 = 1.82$ (specification page 10, lines 2-3).

Nd:YAG thus does not fulfill this requirement. That is, the range suggested by SCHICHIJYO in view of SHIMOJI falls outside the range expressly recited in amended claims 1 and 17. SCHICHIJYO therefore neither teaches nor suggests all the recitations of amended claims 1 and 17. On the contrary, SCHICHIJYO in view of SHIMOJI teaches away and outside the recited range. Moreover, the disclosure of "substantially the same" is so broad as to encompass a large number of possibilities outside that recited by the claims, especially in consideration that Nd:YAG as taught by the references fails to satisfy the recited requirement.

Therefore, it is respectfully submitted that amended claims 1 and 17 are novel and non-obvious in view of the references applied by the Official Action.

Reconsideration and allowance of claims 1 and 17 are respectfully requested.

It is respectfully submitted that claims depending from claims 1 and 17 are patentable at least for depending from patentable claims.

From the foregoing, it will be apparent that applicants have fully responded to the May 1, 2008 Official Action and that the claims as presented are patentable. In view of this, applicants respectfully request reconsideration of the claims, as presented, and their early passage to issue.

In order to expedite the prosecution of this case, it is requested that the Examiner telephone the attorney for applicants at the number set forth below if the Examiner is of the opinion that further discussion of this case would be helpful.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON

/Roland E. Long, Jr./
Roland E. Long, Jr., Reg. No. 41,949
209 Madison Street
Suite 500
Alexandria, VA 22314
Telephone (703) 521-2297
Telefax (703) 685-0573
(703) 979-4709

REL/mjr